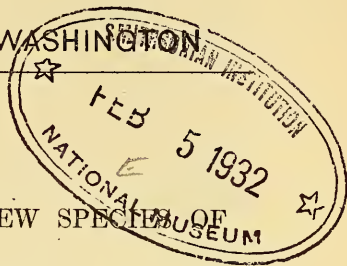


PROCEEDINGS
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BIOLOGICAL SOCIETY OF WASHINGTON



TWO NEW GENERA AND A NEW SPECIES OF
APHIDIDAE.

BY F. C. HOTTES.

In a study of three species of Aphididae heretofore unrecorded from Minnesota, it has been found that two represent new genera and that the third is apparently new to science.

The type of *Carolinaia modestus* (alate viviparous female) here described as new is in the aphid collection of Dr. O. W. Oestlund.

Bipersona, gen. nov.

This genus may be placed in the tribe Macrosiphini. It may be easily and quickly separated from other genera belonging to this tribe by the peculiar structure of the cauda and anal plate. The genus *Bipersona* is closely related to the genus *Macrosiphoniella* Del Guercio, a genus which also shows many Aphidian characteristics. *Bipersona* has retained the short antennae, the short cornicles, and the lateral glands as well as the type of sensilla of the tribe Aphidini; these characters mask its true relationship to the Macrosiphini as is shown by the well developed antennal tubercles, the type of cauda, and the closed reticulations of the cornicles which are so characteristic of the tribe Macrosiphini. The very broad anal plate indicates clearly the descent of the Macrosiphini, as was first pointed out by Oestlund, from a Callipterian stock rather than from the Aphidini. The anal plate of this genus is unique and in itself furnishes a strong enough character upon which to establish the genus.

Characters.—Size large. Antennae six segmented, shorter than the body situated on well developed antennal tubercles. Sensoria with wide margins, present in both alate and apterous forms. Beak unusually long. Veination of wings normal for tribe. Cornicles cylindrical, of moderate length with closed reticulations at the apex. Abdomen supplied with lateral tubercles. Cauda broad at the base otherwise thin and twisted. Anal plate cauda-like very broad at the base tapering to a short cauda-like structure at the apex.

Genotype, *Aphis torticauda* Gillette.

Gillette described *Bipersona torticauda* from material collected in Colorado. Since then it has not been mentioned in literature. I took both alate and apterous forms late in June at Marshall, Minnesota.

Alphitoaphis, gen. nov.

Apparently two lines of stock gave rise to the tribe Aphidini as it is now understood. The older more primitive stock is represented by such genera as *Chitophoroides*, *Gypsoaphis*, *Amphicercidus*, *Cedoaphis*, *Thargelia*, and the present genus, a group of genera which represent few species. The more modern line is represented by comparatively fewer genera but these comprise by far the larger number of species. The type of this genus is not a typical *Aphis*, nor does it belong to any of the genera recently separated from *Aphis*. On the basis of the absence of the cubitus in the hind wing one might consider it a *Hysteronевра*, from which it differs both morphologically and biologically. Phylogenetically it seems to be more primitive than either *Aphis* or *Hysteronевра*.

Characters.—Antennae six segmented, secondary sensoria numerous with wide margins and raised membranes as in the genus *Gypsoaphis*, terminal process long. Veination of fore wings normal for tribe, cubitus of hind wings lacking. Abdomen without lateral glands or tubercles. Cornicles cylindrical of uniform thickness throughout. Cauda broad at the base tapering gradually to a point. Anal plate rounded. Body much rounded, pulverulent.

Genotype, *Aphis lonicericola* Williams.

***Alphitoaphis lonicericola* (Williams).**

This species was taken several times in one of the city parks of Minneapolis on *Lonicera dioica glaucescens*, the leaves of which it causes to curl. It seems to prefer the more tender leaves as the leaves of the terminal branches are usually attacked.

DESCRIPTION OF APTEROUS FORM.

Length 2.125 mm. Head light yellowish-brown, eyes dark brown. Antennae reaching to the base of the cornicles, yellowish to light brown, apical half and terminal process dusky. Antennal tubercles slightly developed. Comparative lengths of antennal segments as follows: III 15–23, IV 12–15, V 11–15, VI 24–27. There are no secondary sensoria. The usual primary sensoria are present. Beak short hardly reaching to the base of the middle pair of legs, apical end dusky to blackish.

The thorax is the same color as the head, legs moderately long, all segments white or slightly yellowish with the exception of the tarsi which are blackish.

Abdomen highly arched, and wide appearing very much swollen, tapering quickly and uniformly from center to anterior and posterior ends. Color of abdomen pinkish buff (Ridgeway) shading to yellowish-brown at the sides and at the base of the cornicles. Cornicles cylindrical of small diameter and of uniform thickness throughout, length equal to or slightly

more than the fourth antennal segment, apical portions often dusky otherwise lighter in color than the rest of the abdomen oftentimes whitish. Cauda slightly more than one-half the length of the cornicles, bearing from four to six hairs on a side the apical ones of which are bent inwardly.

Anal plate rounded. Head, thorax and abdomen very sparsely but evenly covered with pulverulence.

DESCRIPTION OF ALATE FORM.

Length, about 1.8 mm. Head brownish, eyes dark brown. Antennae brownish, segments V and VI slightly lighter in color than III and IV. Comparative lengths of antennal segments as follows: III 24–26, IV 15–19, V 15–17, VI 30–35. Secondary sensoria with wide margins, numerous, irregularly arranged and distributed as follows: III 35–47, usually more than 40, IV 24–30 usually 30, V 14–17 usually 16. Primary sensorium on VI with a group of secondary sensoria on one side. Beak short, hardly reaching the base of the middle pair of legs, dusky to blackish at the tip.

Thorax darker than the head. Legs moderately long, yellowish-brown, tips of segments and tarsi dusky. Fore wings rather long and narrow, stigma long, yellowish-brown pointed at the apex, second fork of media midway between the first and the margin of the wing. Veins well developed yellowish-brown. Hind wings lacking the cubitus.

Abdomen not quite so highly arched as in the apterous form, rich golden-yellow with transverse somewhat broken bands of yellowish-brown on the dorsum and lateral portions. Posterior portion of abdomen and anal plate brownish, cauda yellowish. Cornicles of small diameter in length less than the fifth antennal segment. Cauda and anal plate shaped as in the apterous form.

The apterous form of this species was first described by Williams in his "Aphididae of Nebraska." Through the kindness of Prof. Myron H. Swenk of the University of Nebraska I have been permitted to study the type slide and to compare the specimens on it with material collected in Minnesota; the two agree very well.

I can not account for the statement made by Williams as to the color of this species being "reddish purple" unless color is an unstable character in this species.

Carolinaia modestus, n. sp.

The alate form of this species differs from *Carolinaia cyperi* Ainslie, to which it appears to be most closely allied, by the following characters: the third and fourth segments of the antennae carry numerous sensoria in contrast to the few placed in a single row and limited to the third segment in *C. cyperi*. The third antennal segment and the beak of this species are also much longer than these structures are in *C. cyperi*. The two species also differ in the shape of the cornicles, but perhaps the greatest difference comes in the shape of the cauda and the anal plate.

This species was collected on *Polytricum commune*, a moss growing in two small areas in a woods a short distance from the farm campus of the University of Minnesota. The individuals of this species seem never to

be abundant. They are always found feeding singly on the branches of the moss. They seem to produce but few young. When disturbed they move away slowly or remain attached unlike other aphids.

DESCRIPTION OF THE APTEROUS FORM.

Size about 1.38 mm. Head from a deep chestnut to a dark dusky brown. Antennae brownish, situated on well developed antennal tubercles. Comparative lengths of antennal segments as follows: III 12, IV 7, V 8, VI 21 with but little variation. There are no secondary sensoria, the primary sensoria are free from hair. The sensorium on VI has a group of small secondary sensoria on one side. Joints V and VI somewhat darker than the others. Beak reaching to or beyond the base of the middle pair of legs. Thorax usually darker than the head. Legs moderately long, pale yellowish except tarsi which are light dusky.

Color of abdomen from a deep chestnut brown to a dark greenish-black. When a chestnut brown the sides and a small area around the base of the cornicles yellowish-brown, when greenish-black usually shining and with a bronzy cast. Cornicles yellowish-brown, lighter in color than the abdomen if it is brown, if the abdomen is greenish black then the cornicles are the same. Abdomen very wide for its length, somewhat arched, tapering uniformly to the head and cauda. Cornicles equal in length to the terminal process or to the sum of the second and third segments of the antennae, swollen on the inside and with the constriction just before the apex well developed. Cauda short broadly triangular, extending but little if any beyond the anal plate, with a very characteristic knob or bead-like structure at the apex. The sides of the cauda are serrate and bear three hairs each. The anal plate is wide with the posterior margin very little curved.

DESCRIPTION OF ALATE FORM.

Size about 1.36 mm. Head dusky brown. Antennae dusky, situated on well developed antennal tubercles. Proportional lengths of antennal segments as follows: III 21, IV 12, V 11, VI 25, with but little variation. Secondary sensoria numerous irregularly placed, distributed as follows: III 21-30, IV 10-11, V 2-0. Beak reaching to or beyond the base of the metathoracic coxae. Eyes reddish brown.

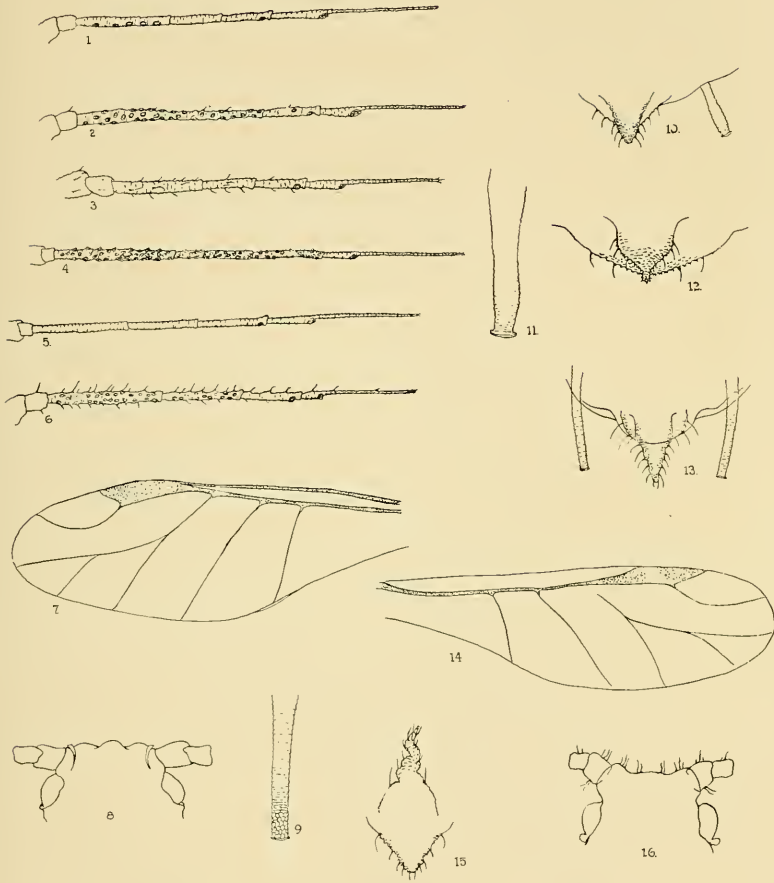
Thorax dark brown, anterior portion lighter in color. Legs of moderate length, brownish-yellow, distal ends of femora, tibiae, and tarsi darker. Stigma of fore wing short and thick, dark colored. Radial sector very much curved. Second branch of media closer to the margin of the wing than to the first branch. Hind wings with from one to three hamuli.

Abdomen chestnut brown with darker markings, sometimes yellowish brown at the margins and with a solid dark brown area in the middle. Cornicles yellowish-brown otherwise as in the apterous form.

EXPLANATION OF PLATE.

NOT ALL DRAWINGS MADE TO THE SAME SCALE.

1. Antenna of *Carolinaia cyperi* alate form.



Figs. 1-16. Antennae, wings, etc., of Aphididae.